



**EMPLOYEE PERFORMANCE MEASUREMENT USING ANALYTIC HIERARCHY
PROCESS**

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Abstract

Human resources and performance are the primary determinants of organizational success in today's contemporary enterprises. The main purpose of employee performance evaluation is to ensure a fair assessment of the employee's contribution to the workforce. An effective performance measurement system helps to boost employee productivity, focus on work discipline and make decisions in time.

Analytic Hierarchy Process (AHP) is a structured method for analyzing complex decision-making problems by calculating the weights of each criterion. Using a carefully constructed questionnaire, each respondent compares the relative value of each pair of elements. This method can be used for both qualitative and quantitative analysis. In this paper, Analytic Hierarchy Process (AHP) is used for employee performance measurement. The proposed AHP model contains criteria based on internal automated business processes of organization. As a result, it allows a straightforward consideration of each employee's performance by comparing all the criteria.

Keywords: Employee Performance Management, AHP, BPM

Introduction

Performance management that promotes human resource productivity is critical in today's competitive environment, where productivity is improving in all sectors and only firms that use their resources to the best of their capacity and have the highest performance can survive.

Performance management can be defined as a set of metrics and data used to improve the level of optimal use of facilities and resources in order to achieve goals in the most cost-effective and efficient manner possible. Performance management allows you to track your employees' performance and determine whether they require additional assistance, can handle more advanced training, or deserve a raise. Maintaining high standards in your organization requires an organized approach to performance management and tracking.

In addition, evaluating the contribution of each employee to the overall result allows a reasonable approach to the distribution of the payroll and the most efficient use of financial leverage to solve the tasks facing the team.

The concept of performance management and measurement is generating a lot of discussion in this age of increasingly competitive marketplaces and corporate goals that demand higher revenue and profits. The issue is that there is no one suitable methodology for creating a



performance assessment system. Organizations have tested and used a wide range of formal and informal systems, but they are still striving to find the ideal system for them.

In this paper AHP is used for employee performance measurement in internal business process management systems. A business process management system allows for the modeling, planning, execution, and maintenance of business activities and the workers that execute them across departments and locations. These software solutions are intended to assist businesses in maximizing the efficiency and productivity of their daily business procedures. This work considers the use of AHP to check the business process completion quality.

Analytic Hierarchy Process (AHP)

AHP is a multi-criteria decision-making process for dealing with complicated, unstructured problems invented by Prof. Thomas L. Saaty in 1980[3]. Problem modeling is the most creative aspect of decision-making that has a significant impact on the outcome. The key to implementing AHP successfully is to identify the decision hierarchy. This method involves pairwise comparisons and is essentially the formalization of a difficult problem using a hierarchical framework.

AHP creates ratio scales from paired comparisons of criteria, allowing for minor judgment errors.

The AHP approach divides the problem into three parts:

The issue that has to be fixed

The different solutions that are available to tackle the problem

The criteria used to evaluate the alternative (most significant component of the AHP technique)

Literature review

The areas of application of the AHP in the framework of the competence based approach to human resource management are as follows:

The work [1] describes a specific case of applying the AHP: in February 2009, a telecommunications company in Iran used this method to select a candidate from five people who passed the interview. The choice was made on the basis of the following competencies: ability to work in various structural units, previous experience, ability to work in a team, fluency in a foreign language, strategic thinking, oral communication and computer skills. As a result, a suitable candidate was selected.

Rafikul Islama and Shuib bin Mohd Rasad(2006) uses AHP to evaluate employee performance in organization. Overall ranking of the employees has been obtained using the



absolute measurement procedure of AHP.

Here are the criteria that used in this paper:

Quality/Quantity of work

Planning/organization

Initiative/commitment

Teamwork/cooperation

Communication

External factors

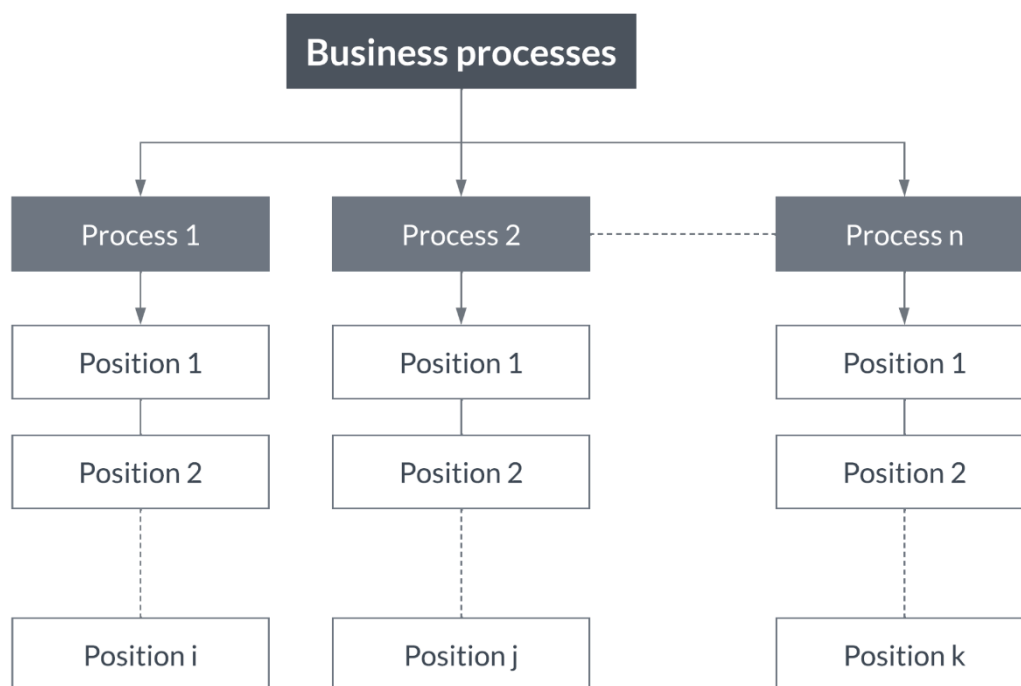
As a result, the authors developed the AHP model, which shows the performance of employees for each criterion.

AHP for performance measurement has been sufficiently studied by various authors, which will help to conduct study more accurately.

Methodology

In the AHP model the problem is organized as a hierarchy. AHP first divides a multicriteria decision problem into a hierarchy of interrelated decision parts (criteria, decision alternatives). The goals, criteria, and alternatives of the AHP are organized as a family tree in a hierarchical structure. The overarching goal of the problem is at the top of the hierarchy, followed by several criteria defining alternatives in the middle, and solution alternatives at the bottom. The act of building this structure helps not only to better identify all the components of the solution, but also to recognize their relationship.

To build an AHP model for performance measurement, all criteria and sub-criteria must be defined. Since in this paper the main goal is the performance of an employee in business processes, all business processes in which a particular employee participates are selected as the main criteria. Each business process has its own workflow scheme through which tasks are performed. Every position step in the process is considered as one action. In the Scheme1, the proposed AHP model for business process performance measurement is shown.



Scheme 1. AHP model for business process performance measurement

To measure employee performance with proposed AHP model, the steps mentioned below should be followed:

Step 1: The average time completion for each process (main criteria) will be calculated and the percentage of time from total will be the weight of each process.

Step 2: The weights of positions in each process will be calculated as in Step 1.

Step 3: Every employee's average time completion for each position in processes will be defined.

Step 4: In order to find the performance of each employee all criteria and subcriteria weights that belong to a current employee will be multiplied by the average time completion of the employee.

As a result, a list of employees and values showing their overall effectiveness in business processes will be available.

The proposed model can be changed using the pairwise comparison developed by Saaty in the 1990s to calculate the weight of each criterion and find the ratio between categories. In order to use pairwise comparison there must be an accurate assessment for each criteria.

Conclusion



An effective performance evaluation system that promotes continuous professional development improves the overall performance of the company. Their effectiveness and applicability directly depends on the goals set, the level of maturity of the company, its objectives and the type of corporate culture. In this paper the use of AHP for employee performance evaluation in business processes is explained. Such an analysis helps to objectively assess the quality of an employee's work and expand the use of business process management systems within the company. The final stage of the assessment is the adoption of managerial decisions about those employees who were assessed.

References

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